

## **REMARKS**

Reconsideration of the present application is requested. Claim 27 has been added. Support for the amendments made to claims 1, 17 and 26 may be found, for example, in paragraph [0020] of the Specification. Support for new claim 27 may be found, for example, in paragraph [0008].

### **REJECTIONS UNDER 35 U.S.C. § 112**

The Examiner rejects claim 26 under 35 U.S.C. § 112, second paragraph. Applicants have amended claim 26 taking into account the Examiner's comments. Withdrawal of this rejection is requested.

### **PRIOR ART REJECTION**

#### **Rejection under 35 U.S.C. § 103**

Claims 1, 3, 17, 18 and 20-24 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable by U.S. Patent Application Publication No. 2002/0186813 ("*Tamura*") in view of U.S. Patent No. 6,282,261 ("*Mazess*"). This rejection is respectfully traversed.

As amended, claim 1 requires, *inter alia*, "a CCD camera coupled to said fluorescent output screen of said X-ray image amplifier via an optical system, the CCD camera having an interline transfer image converter." Neither *Tamura* nor *Mazess* teach or fairly suggest a "CCD camera having an interline transfer image converter," and thus, even in combination (assuming such a combination could be made, which Applicants do not admit) fail to render claim 1 obvious.

The Examiner relies upon the flat panel detector 5004 of *Tamura* to allegedly teach the "CCD camera," of claim 1. As previously argued, *Tamura* arguably discloses a flat-panel image detector without image amplifier or optics, but *not* a "CCD camera." Moreover, *Tamura* does *not* disclose a "CCD camera having an *interline transfer image converter*," as required by claim 1.

*Mazess* discloses an image intensifier. Referring to FIG. 31, X-rays 366 pass through a front surface 364 of vacuum bowl 362 and strike a target material 368 to eject electrons 370 into the volume of the bowl 362. Focusing electrodes 372 direct the electrons to a target phosphor 374 where an image is formed to be received by the CCD array 375.

Referring to FIGS. 36 and 37, multiple cameras 504 are provided for imaging different quadrants 506 of the target phosphor 374. The multiple cameras 504 are positioned beneath a microchannel plate 500 under a rectangular target material 368. The optical axis of each camera 504 is centered on its respective quadrant 506.

Contrary to claim 1, however, *Mazess* also fails to teach or fairly suggest a "CCD camera having an interline transfer image converter," as required by claim 1. *Mazess* fails to teach or suggest any interline transfer image converter whatsoever.

Because neither *Tamura* nor *Mazess* teaches or suggests a "CCD camera having an interline transfer image converter," as required by claim 1, *Tamura*

and *Mazess* (assuming *arguendo* such the references could be combined, which Applicants do not admit), fail to render claim 1 obvious.<sup>1</sup>

Further, the Examiner relies upon paragraph [0045] of *Tamura* to allegedly teach, "a readout without a desired signal including image information is suppressed, and exposure of the CCD camera is triggered directly by the external trigger pulse," as recited in claim 1. Applicants disagree with the Examiner's conclusion.

Referring to FIG. 23 of *Tamura*, during an initialization process, at time T1 capacitor 5021C is initialized in response to a refresh signal (refresh process). At time T2, dark current is generated and accumulated as charge on the capacitor 5021C. At time T3, the charge accumulated on the capacitor 5021C is swept out (idle read). When an X-ray radiation switch is pressed during the initialization process, and the X-ray radiation request signal goes 'Low,' the *current initialization process is interrupted, and restarts from the beginning*. Thus, in *Tamura*, when X-ray radiation switch is pressed, the initialization process is interrupted, re-started and X-ray radiation is not emitted until the newly restarted initialization process is completed.

In contrast to *Tamura*, in claim 1, "a readout without a desired signal including image information is suppressed, and *exposure of the CCD camera is triggered directly by the external trigger pulse*," if the time elapsed between a

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<sup>1</sup> For the sake of clarity, Applicants have discussed each of the references separately. However, such discussions should not be construed as attacking the references individually. Instead, Applicants argue that the references, even taken in combination, fail to render the claimed invention obvious because all features of claim 1 are not found in the prior art (i.e., *Tamura* and *Mazess*).

most recent reset pulse and an external trigger pulse is less than a duration of the readout of the CCD camera without a desired signal including image information. Accordingly, whereas in claim 1 the readout is suppressed and exposure of the CCD camera is triggered directly by the external trigger pulse, in *Tamura* the initialization process is interrupted and restarted from the beginning.

In responding to the above-argument, the Examiner states:

There is nothing in the claims that forbids the initialization process from restarting from the beginning in response to the external trigger. A temporary suppression of the current/immediate readout of the CCD camera would still read on the claims. Furthermore, the applicant argues that the exposure of the CCD camera is not triggered directed by the external trigger pulse because the initialization process is performed prior to exposure. The Examiner respectfully disagrees. Again, the applicant relies on feature not recited in the rejected claims. The exposure of the CCD camera is a direct result of the external trigger.

Office Action, U.S. Pat. & Trademark Office, p. 11-12 (Oct. 3, 2007).

Applicants disagree with this statement by the Examiner. In *Tamura*, the exposure of the flat panel detector 5004 is *not* triggered *directly by an external trigger*. As discussed above, pressing of the X-ray radiation switch *interrupts and restarts* the initialization process *from the beginning*. In doing so, each of the refresh and idle read-out steps are performed before exposure. In fact, the exposure of the flat panel detector 5004 is not triggered (let alone directly triggered) by the external trigger at all. To the contrary, at most, only interruption and restarting of the initialization process could arguably be considered directly triggered by pressing the X-ray radiation switch. The

exposure of the flat panel detector is merely a step (albeit a later one) in the process that has been restarted, and thus, at most only an indirect result of pressing the x-ray radiation switch. Exposure of the flat panel detector 5004 in *Tamura* cannot be considered *directly triggered* by pressing the X-ray radiation switch when the refresh process and idle readout must take place prior to exposure.

Moreover, the Examiner dismisses Applicants argument that the exposure in *Tamura* is not directly triggered by an external trigger stating that "applicant relies on feature not recited in the rejected claims." Office Action at 12. However, claim 1 clearly recites, "if the time elapsed between a most recent reset pulse and an external trigger pulse is less than a duration of the readout of the CCD camera without a desired signal including image information, *a readout without a desired signal including image information is suppressed, and exposure of the CCD camera is triggered directly by the external trigger pulse.*" That being said, Applicants' previous arguments are clearly directed to a recited claim limitation.

For at least the foregoing reasons, claim 1 is patentable over *Tamura*. Claim 17 is patentable over *Tamura* for at least reasons somewhat similar to those set forth above. Claims 3, 18 and 20-24 are patentable over *Tamura* at least by virtue of their dependency from claims 1 or 17.

#### **Further Rejections under 35 U.S.C. § 103**

Claims 4 and 8 stand rejected under 35 U.S.C. §103(a) as unpatentable over *Tamura*, *Mazess* and further in view of U.S. Patent No. 5,117,446

("Haaker"); claims 5 and 11 stand rejected under U.S.C. §103(a) as allegedly unpatentable over *Tamura, Mazess* and further in view of U.S. Patent No. 6,412,978 ("*Watanabe*") and U.S. Patent No. 5,175,754 ("*Casey*"); claims 12 and 15 stand rejected under U.S.C. §103(a) as allegedly unpatentable over *Tamura, Mazess, Haaker, Watanabe* and *Casey*.

With respect to claims 4, 5, 8, 11, 12, 15 and 16, Applicant traverses this rejection in that even assuming the above-recited references could be combined as suggested by the Examiner (which Applicant does not admit), none of *Haaker, Watanabe* and/or *Casey*, taken singly or in combination, make up for the above-discussed deficiencies of *Tamura* and *Mazess* with respect to claims 1 or 17. Accordingly, claims 4, 5, 7-11 are patentable over *Tamura, Mazess, Haaker, Watanabe* and/or *Casey*.

#### **Rejection under 35 U.S.C. § 102**

Claim 26 stands rejected under 35 U.S.C. § 102(e) as allegedly anticipated by U.S. Patent Application Publication No. 2002/0186813 ("*Tamura*"). This rejection is respectfully traversed.

The Examiner relies upon the flat panel detector 5004 of *Tamura* to allegedly teach the "CCD camera," of claim 26. While *Tamura* arguably discloses a flat-panel image detector without image amplifier or optics, *Tamura* does not teach or fairly suggest a "CCD camera." Moreover, *Tamura* does not disclose an "interline transfer image converter," as required by claim 26. Therefore, *Tamura* fails to teach or suggest at least, "a CCD camera including an interline transfer image converter," as required by claim 26.

Moreover, the Examiner relies upon paragraph [0045] of *Tamura* to allegedly teach, "a readout without a desired signal including image information is suppressed, and exposure of the CCD camera is triggered directly by the external trigger pulse," as recited in claim 26. Applicants disagree with the Examiner's conclusion.

As discussed above, pressing of the X-ray radiation switch *interrupts and restarts* the initialization process *from the beginning*. In doing so, each of the refresh and idle read-out steps are performed before exposure. In fact, the exposure of the flat panel detector 5004 is not triggered (let alone directly triggered) by the external trigger at all. At most, only interruption and restarting of the initialization process could arguably be considered directly triggered by pressing the X-ray radiation switch. The exposure of the flat panel detector is merely a step (albeit a later one) in the process that has been restarted, and thus, at most only an indirect result of pressing the x-ray radiation switch. Exposure of the flat panel detector 5004 in *Tamura* cannot be considered *directly triggered* by pressing the X-ray radiation switch when the refresh process and idle readout must take place prior to exposure.

For at least the foregoing reasons, *Tamura* fails to teach or suggest at least, "a readout without a desired signal including image information is suppressed, and exposure of the CCD camera is triggered directly by the external trigger pulse," as recited in claim 26 and claim 26 is patentable over *Tamura*.

### **NEW CLAIMS**

Applicant has added new claim 27, which is also believed to be patentable over the prior art. Although at least somewhat similar arguments to those set forth above may apply, claim 26 should be interpreted solely by limitations presented therein.

### **CONCLUSION**

Accordingly, in view of the above amendments and remarks, reconsideration of the objections and rejections and allowance of each of the claims in connection with the present application is earnestly solicited.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), applicant hereby petitions for a one (1) month extension of time for filing a reply to the outstanding Office Action and submit the required \$120.00 extension fee herewith.

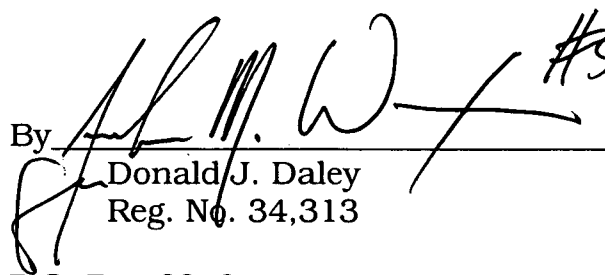
If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to telephone Andrew M. Waxman, Reg. No. 56,007, at the number of the undersigned listed below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

HARNESS, DICKEY & PIERCE, PLC

By

A handwritten signature in black ink, appearing to read "Donald J. Daley", is written over a horizontal line. To the right of the signature, the number "#56,007" is handwritten.

Donald J. Daley  
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